

1 **WHAT IS CLAIMED IS:**

- 2 1. A method of managing a wireless repeater (101) with a diverse
3 communications interface capability, comprising the steps of:
4 preparing a wireless repeater (101) with multiple wireless
5 communication system drivers, each of the multiple wireless communication
6 system drivers supporting a different version of wireless communications
7 protocols, to enable the personal computing device (102) to establish bi-
8 directional communication with a target system, that may only support a
9 particular version of wireless communications protocols, operating on a personal
10 communications device, a mobile communications system, or a WLAN;
11 enabling the wireless repeater (101) to establish regular communication
12 links with the personal computing device (102) through a first wireless
13 communications module (20);
14 enabling the wireless repeater (101) to establish regular communication
15 links with a mobile communications network (103) through the mobile
16 communications module (30), and also to detect whether the call is an incoming
17 call or an outgoing call for initiating a call interrupt; and
18 enabling the wireless repeater (101) to establish a communication link
19 with an access point of the WLAN (104) through a WIFI communications
20 module (40), on the condition that the personal computing device (102) has
21 successfully logged onto the network.
22 2. The method of managing a diverse wireless repeater (101) according
23 to claim 1, wherein the personal computing device (102) is configured with the
24 wireless repeater (101) such that the personal computing device (102) is able to

1 establish communication links with the GPRS system to transmit or receive
2 electronic mails and perform web site services.

3 3. The method of managing a diverse wireless repeater (101) according
4 to claim 1, wherein the personal computing device (102) is configured with the
5 wireless repeater (101) such that the personal computing device (102) is able to
6 establish communication links with the GSM system to make an outgoing call or
7 receive an incoming call.

8 4. The method of managing a diverse wireless repeater (101) according
9 to claim 2, wherein the personal computing device (102) is configured with the
10 wireless repeater (101) such that the personal computing device (102) is able to
11 establish communication links with the GSM system to make an outgoing call or
12 receive an incoming call.

13 5. The method of managing a diverse wireless repeater (101) according
14 to claim 3, wherein the personal computing device (102) is configured with the
15 wireless repeater (101) such that the personal computing device (102) through
16 the relay function of the wireless repeater (101) can use a net phone (VoIP) to
17 make connection with another phone, on the remote end and with the same
18 capability, on the condition that the personal computing device (102) has
19 successfully logged onto the network.

20 6. The method of managing a diverse wireless repeater (101) according
21 to claim 4, wherein the personal computing device (102) is configured with the
22 wireless repeater (101) such that the personal computing device (102) can use a
23 net phone (VoIP) to make connection with another phone with the same
24 capability on *the remote end, on the condition that the personal computing

1 device (102) has successfully logged onto the network.

2 7. The method of managing a diverse wireless repeater (101) according
3 to claim 1, wherein the personal computing device (102) is configured with the
4 wireless repeater (101) such that the user is able to use a headset with a high
5 speed port (HSP) to make telephone calls or receive calls.

6 8. A wireless repeater (101) with a diverse communications interface
7 capability, comprising:

8 a microprocessor (10) serving as a control hub;

9 a first wireless communications module (20) for establishing bi-
10 directional communication with a personal computing device (102);

11 a mobile communications module (30), being connected to the
12 microprocessor (10), for making connection with two mobile communications
13 systems (GPRS/GSM);

14 a WIFI communications module (40), being connected to the
15 microprocessor (10), for making connection with a WLAN (104);

16 a CODEC interface module (50), being connected in between the first
17 wireless communications module (20) and the microprocessor (10), for encoding
18 and decoding voice signals in the data transmission process;

19 whereby the microprocessor (10) can automatically detect and switch to
20 an appropriate wireless/mobile communications system to match the target
21 system on the remote, that may only support a particular version of wireless
22 communications protocols, for bi-directional communication between the
23 personal computing device (102) and the target system.

24 9. The wireless repeater (101) according to claim 8, wherein the first

1 wireless communications module (20) can be a Bluetooth module.

2 10. The wireless repeater (101) according to claim 8, wherein the mobile
3 communications module (30) is a GSM/GPRS interface.

4 11. The wireless repeater (101) according to claim 8, wherein the WIFI
5 communications module (40) is a transceiver for a wireless local area network
6 WLAN.

7 12. The wireless repeater (101) according to claim 8, wherein the
8 wireless repeater (101) further includes a third wireless communications module
9 (80) that is an infra-red transmission interface for transmission of voice and
10 digital data.

11 13. The wireless repeater (101) according to claim 8, wherein the
12 CODEC interface module (50) is formed by a PWM CODEC(51) and a voice
13 CODEC (54), wherein the PWM CODEC (51) is connected to the first wireless
14 communications module (20) and through the voice CODEC (54) is further
15 connected to the microprocessor (10).

16 14. The wireless repeater (101) according to claim 13, wherein the
17 CODEC interface module (50) further has a pair of multiplexers (52)(53)
18 installed in between the PWM CODEC (51) and the voice CODEC (54), wherein
19 one of the two multiplexers (52)(53) is connected to a headset plug-in socket
20 (55), whereby the multiplexer (52)(53) can switch the voice data transmission
21 path between the first wireless communications module (20) and the headset
22 connected through the voice CODEC and the microprocessor (10).

23 15. The wireless repeater (101) according to claim 8, wherein the
24 microprocessor (10) is further connected to a prompter (70), whereby the

1 prompter (70) can generate vibrations, light beams, or ringing tones to notify the
2 user when an incoming call is received, or when the wireless repeater (101) has
3 ceased the existing link with the WLAN (104).

4 16. The wireless repeater (101) according to claim 15, wherein the
5 prompter (70) is formed by a pair of indicator LEDs (71) (72), a vibrator (73),
6 and a speaker (74) and related driver circuits.

7 17. The wireless repeater (101) according to claim 8, wherein the
8 personal computing device (102) is a notebook computer.

9 18. The wireless repeater (101) according to claim 8, wherein the
10 personal computing device (102) is a flat panel computer.

11 19. The wireless repeater (101) according to claim 8, wherein the
12 personal computing device (102) is a personal digital assistant (PDA).

13 20. The wireless repeater (101) according to claim 8, wherein the
14 microprocessor (10) is connected to a memory unit (11), wherein the memory
15 unit (11) is installed with flash RAMs and DRAMs.

16 21. The wireless repeater (101) according to claim 8, wherein the
17 wireless repeater (101) further includes a power supply module (60) for
18 providing the operating voltage to all system components.